GeoVision
The Vision of Security

Quick Start Guide

GV-IP Camera H.264

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

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February 2012

For GV-CBW120 and GV-CBW220:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

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Introduction

Welcome to the *GV-IPCam H.264 Quick Start Guide*. In this quick guide, you will find information on the installation and basic configurations of the **Box Camera**, **IR Arctic Box Camera**, **Mini Fixed Dome**, **Mini Fixed Rugged Dome**, **Bullet Camera**, **Vandal Proof IP Dome**, **Fixed IP Dome**, **Cube Camera** and **Wireless Cube Camera**.

Camera	Model No.		Description
Box Camera	GV-BX110D	Fixed Lens	1.3 MP H.264, D/N, Fixed Iris
		Varifocal Lens	1.3 MP H.264, D/N, Auto Iris
	GV-BX120D	Varifocal Lens	1.3 MP H.264, Low Lux, D/N, Auto Iris, f: 2.8 ~ 12 mm, F/1.4, 1/3" CS Lens
	GV-BX130D-0	Varifocal Lens	1.3 MP H.264, D/N, Auto Iris, f: 2.8 ~ 12 mm, F/1.4, 1/3" CS Lens
	GV-BX130D-1	Fixed Lens	1.3 MP H.264, D/N, Fixed Iris, f: 4 mm, F/1.5, 1/3" CS Lens
	GV-BX140DW	Varifocal Lens	1 MP H.264, D/N WDR, Fixed Iris, f: 2.8 ~ 12 mm, F/1.4, 1/3" CS Lens

Camera	Model No.		Description
Box Camera	GV-BX220D-0	Varifocal Lens	2 MP, H.264 D/N, Auto Iris, f: 2.8 ~ 8.5 mm, F/1.4, 1/3” CS Lens
	GV-BX220D-1		2 MP, H.264 D/N, Auto Iris, f: 3.1 ~ 8 mm, F/1.2, 1/3” CS Lens
	GV-BX220D-2		2 MP, H.264 D/N, Auto Iris, f: 2.8 ~ 6 mm, F/1.3, 1/3” CS Lens
	GV-BX220D-3		2 MP, H.264 D/N, Auto Iris, f: 2.8 ~ 12 mm, F/1.4, 1/3” CS Lens
	GV-BX320D-0		3 MP, H.264 D/N, Auto Iris, f: 3.1 ~ 8 mm, F/1.2, 1/3” CS Lens
	GV-BX320D-1		3 MP, H.264 D/N, Auto Iris, f: 2.8 ~ 6 mm, F/1.3, 1/3” CS Lens
	GV-BX520D-0		5 MP, H.264 D/N, Manual Iris, f: 4.5 ~ 10 mm, F/1.6, 1/2” CS Lens

Camera	Model No.		Description
IR Arctic Box Camera	GV-BX120D-E	Varifocal Lens	1.3 MP, H.264, Low Lux, D/N, Auto Iris, f: 2.8 ~ 12 mm, F/1.4, 1/3'' CS Lens
	GV-BX220D-E		2 MP, H.264 D/N, Auto Iris, f: 2.8 ~ 6 mm, F/1.3, 1/3'' CS Lens
	GV-BX320D-E		3 MP, H.264 D/N, Auto Iris, f: 2.8 ~ 6 mm, F/1.3, 1/3'' CS Lens
	GV-BX520D-E		5 MP, H.264 D/N, Manual Iris, f: 4.5 ~ 10 mm, F/1.6, 1/3'' CS Lens
Mini Fixed Dome	GV-MFD110	Fixed Lens	1.3 MP H.264, Color, Fixed Iris
	GV-MFD120		1.3 MP, H.264, Low Lux Color, Fixed Iris
	GV-MFD130		1.3 MP, H.264, Color, Fixed Iris
	GV-MFD220		2 MP, H.264, Color, Fixed Iris
	GV-MFD320		3 MP, H.264, Color, Fixed Iris
	GV-MFD520		5 MP, H.264, Color, Fixed Iris
	GV-MDR520		5 MP H.264, Color, Fixed Iris

Camera	Model No.		Description
Mini Fixed Rugged Dome	GV-MDR120	Fixed Lens	1.3 MP Low Lux H.264, Color, Fixed Iris
	GV-MDR220		2 MP H.264, Color, Fixed Iris
	GV-MDR320		3 MP H.264, Color, Fixed Iris
	GV-MDR520		5 MP H.264, Color, Fixed Iris
Bullet Camera	GV-BL110D	Varifocal Lens	1.3 MP H.264, Auto Iris
	GV-BL120D		1.3 MP H.264, Low Lux, Auto Iris
	GV-BL130D		1.3 MP H.264, Auto Iris
	GV-BL220D		2 MP H.264, Auto Iris
	GV-BL320D		3 MP H.264, Auto Iris

Camera	Model No.		Description
Vandal Proof IP Dome	GV-VD120D (IK10+, Transparent Cover) GV-VD121D (IK10+, Smoked Cover) GV-VD122D (IK7, Transparent Cover) GV-VD123D (IK7, Smoked Cover)	Varifocal Lens	1.3 MP H.264, Low Lux, Auto Iris
	GV-VD220D (IK10+, Transparent Cover) GV-VD221D (IK10+, Smoked Cover) GV-VD222D (IK7, Transparent Cover) GV-VD223D (IK7, Smoked Cover)		2 MP H.264, Auto Iris
	GV-VD320D (IK10+, Transparent Cover) GV-VD321D (IK10+, Smoked Cover) GV-VD322D (IK7, Transparent Cover) GV-VD323D (IK7, Smoked Cover)		3 MP H.264, Auto Iris

Camera	Model No.		Description
Fixed IP Dome	GV-FD120D	Varifocal Lens	1.3 MP H.264, Low Lux, Auto Iris
	GV-FD220D		2 MP H.264, Auto Iris
	GV-FD320D		3 MP H.264, Auto Iris
Cube Camera	GV-CB120	Fixed Lens	1.3 MP H.264, Fixed Iris
	GV-CB220		2 MP H.264, Fixed Iris
Wireless Cube Camera	GV-CBW120		1.3 MP H.264, Wireless Fixed Iris
	GV-CBW220		2 MP H.264, Wireless Fixed Iris

For a detailed user's manual, see *GV-IPCam H.264 User's Manual* on the software CD.

Options

Optional devices can expand your camera's capabilities and versatility. Contact your dealer for more information.

Device	Description
GV-IR LED	A mountable infrared LED device that improves image performance of Box Cameras under low light conditions. Note that the **GV-IR LED** is only compatible with GV-BX110D and **GV-IR LED T2** is compatible with GV-BX120D / 130D Series / 140DW / 220D Series / 320D Series / 520D-0.
GV-PA191 PoE Adapter	The GV-PA191 PoE adapter is designed to provide power and network connection to the cameras over a single Ethernet cable.

Optional Accessories for Installation

For wall pendant mount of **GV-Vandal Proof IP Dome** or **GV-Fixed IP Dome**, purchase one of the Wall Pendant Tube and the corresponding mounting kit (GV-Mount901 or GV-Mount902) below.

Model No.	Description	Detail
GV-Mount200	**Wall Pendant Tube** 	**Dimensions (L x W x D)** 225 x 140 x 250 mm / 8.9 x 5.5 x 9.8 in **Weight:** 900 g / 1.98 lb
GV-Mount201	**Wall Pendant Tube** 	**Dimensions (L x W x D)** 197.67 x 109 x 274.25 mm / 7.8 x 4.3 x 10.8 in **Weight:** 600 g / 1.32 lb
GV-Mount202	**Wall Pendant Tube** 	**Dimensions (L x W x D)** 193.08 x 98 x 310.5 mm / 7.6 x 3.9 x 12.2 in **Weight:** 600 g / 1.32 lb

Model No.	Description	Detail
GV-Mount900	**Wall Mount Bracket** 	For L-shaped wall mount of **Vandal Proof IP Dome** and **Fixed IP Dome**. **Dimensions** 154 x 108 x 50 mm / 6.1 x 4.3 x 2 in
GV-Mount901	**GV-VD Series Dome Housing** 	**Dimensions** ø 186 x 97.5 mm / ø 7.3 x 3.8 in **Weight:** 600 g / 1.32 lb
GV-Mount902	**GV-FD Series Dome Housing** 	**Dimensions** ø 186 x 97.5 mm / ø 7.3 x 3.8 in **Weight** 600 g / 1.32 lb

Note for Connecting to GV-System

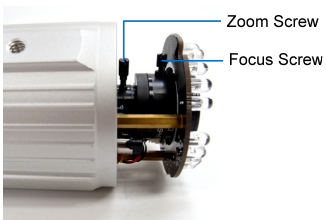
The GV-IPCAM H.264 is designed to work with GV-System, a hybrid or digital video management system. Note the following when GV-IPCAM H.264 is connected to GV-System:

1. Normally, the images are recorded to the memory card inserted in the **Box Camera**, **Mini Fixed Dome** (except GV-MFD110), **Mini Fixed Rugged Dome**, **Bullet Camera**, **Vandal Proof IP Dome**, **Fixed IP Dome**, **Cube Camera** and **Wireless Cube Camera**. Once the camera is connected to GV-System for video management or the camera's Live View is accessed through the Web browser (see *7. Accessing the Camera* in the *Quick Start Guide*), the recording to the memory card will be stopped and the recording will be taken control by GV-System. When the connection between the camera and GV-System is interrupted, the recording to the memory card will be resumed to back up the images on the camera.
2. Once the camera is connected to GV-System, the resolution set on GV-System will override the resolution set on the camera's Web interface. You can only change the resolution settings through the Web interface when the connection to GV-System is interrupted.

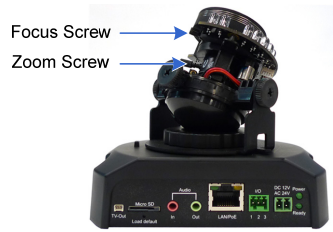
Note for Adjusting Focus and Zoom

When adjusting the Focus and Zoom Screws (on Box Camera, IR Arctic Box Camera, Mini Fixed Dome, Bullet Camera, Vandal Proof IP Dome and Fixed IP Camera), please do not over tighten the Focus and Zoom screws. The screws only need to be as tight as your finger can do it; don't bother using any tools to get them tighter. Doing so can damage the structure of lens.

For example,



Bullet Camera

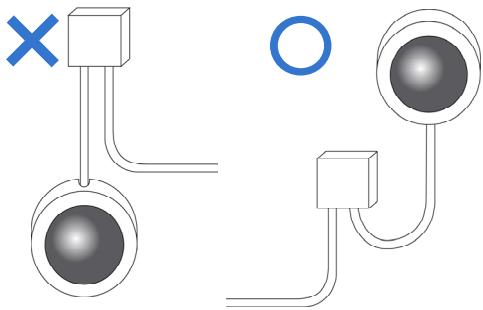


Fixed IP Camera

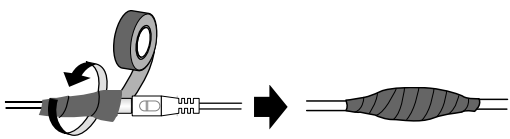
Note for Installing Camera Outdoor

When installing the **IR Arctic Box Camera**, **Bullet Camera**, **Vandal Proof IP Dome** or **Mini Fixed Rugged Dome** outdoor, be sure that:

1. The camera is set up above the junction box to prevent water from entering the camera along the cables.



2. Any PoE, power, audio and I/O cables are waterproofed using waterproof silicon rubber or the like.



1. Box Camera

1.1 Packing List

- Box Camera
- Terminal Block
- Fixed Focal or Varifocal Megapixel Lens
- Pin Wrench (for GV-BX110D only)
- C-mount Lens Adapter (for GV-BX110D only)
- Six Lens Rings (for GV-BX120D / 130D series / 220D series / 320D series / 520D)
- One Lens Ring (for GV-BX140DW only)
- Video Out Wire (not available for GV-BX110D)
- DC 12V Power Adapter
- GV-IPCAM H.264 Software CD
- GV-IPCAM H.264 Quick Start Guide
- GV-NVR Software DVD
- GV-NVR Quick Start Guide

1.2 Overview

GV-BX110D

Note: The Zoom Screw and Auto Iris Connector are only available in the varifocal model.

No.	Name	Description
1	Audio Out	Connects a speaker for audio output.
2	Audio In	Connects a microphone for audio input.
3	Default	Resets all configurations to factory default. See *11. Restoring to Default Settings* later in the *Quick Start Guide*.
4	Memory Card Slot	Inserts a micro SD/SDHC card to store recording data.
5	Video Out	Connects to a portable monitor for setting the focus and angle of Box Camera during initial installation.
6	I/O Terminal Block	Connects to I/O devices. For details, see *I/O Terminal Block*, *Box Camera* chapter *GV-IPCam H.264 User's Manual* on the software CD.
7	LAN / PoE	Connects to a 10/100 Ethernet or PoE.
8	DC 12V Connector	Connects to power.
9	Status LED	Reflects system status of the camera. See the table below.
10	Zoom Screw	Adjusts the zoom of the camera.
11	Focus Screw	Adjusts the focus of the camera.
12	Microphone	Records the sounds.
13	Auto Iris Connector	If the varifocal lens is in use, plug the iris control cable to the connector. Note that Auto Iris Connector is not functional in the fixed focal GV-BX110D.

Status LED	Description
Red Light ON	The system powers on and succeeds to boot up.
Flashing Red and Green Lights	The camera is ready for use with network connectivity.
Green Light ON	Error occurs on the system.

GV-BX120D / 130D Series / 140DW / 220D Series / 320D Series / 520D-0

Note:

1. The Light Sensor is only available in GV-BX140DW. Keep the Light sensor unobscured for accurate light detection.
2. The Iris Screw is only available for GV-BX520D-0.
3. The Zoom Screw is not available for GV-BX110D (fixed lens model) and GV-BX130D-1.

No.	Name	Description
1	Video Out	Connects to a portable monitor for setting the focus and angle of Box Camera during initial installation.
2	Memory Card Slot	Inserts a micro SD/SDHC card to store recording data.
3	Audio Out	Connects a speaker for audio output.
4	Audio In	Connects a microphone for audio input.
5	I/O Terminal Block	Connects I/O devices. For details, see *I/O Terminal Block*, *Box Camera* chapter, *GV-IPCam H.264 User's Manual* on the software CD.
6	Power LED	Indicates the power is supplied.

No.	Name	Description
7	Auto Iris Connector	Plug the iris control cable to the connector. Note that Auto Iris Connector is not functional in GV-BX130D-1, GV-BX140DW and GV-BX520D-0.
8	DC 12V Port	Connects to power.
9	LAN / PoE	Connects to a 10/100 Ethernet or PoE.
10	Default	Resets all configurations to factory default. See *11. Restoring to Default Settings* later in the *Quick Start Guide*.
11	Light Sensor	Detects light to switch between day and night mode.
12	Focus Screw	Adjusts the focus of the camera.
13	Iris Screw	Adjusts the iris of the camera
14	Microphone	Records the sounds.
15	Zoom Screw	Adjusts the zoom of the camera
16	Status LED	Turns on when the unit is ready for use.

1.3 Accessory Installation

1.3.1 C-Mount Lenses

When you use a C-mount lens, it requires a certain distance from the camera's imaging chip to focus the lens. Mount the supplied C-mount lens adapter / lens ring to the camera, and then attach the lens onto the camera body.

GV-BX110D

Install the supplied C-mount lens adapter to extend focal length for GV-BX110D as illustrated below.

GV-BX120D / 130D Series / 140DW / 220D Series / 320D Series / 520D-0

Three type of lens rings are provided for GV-BX120D / 130D Series / 220D Series / 320D Series / 520D-0:

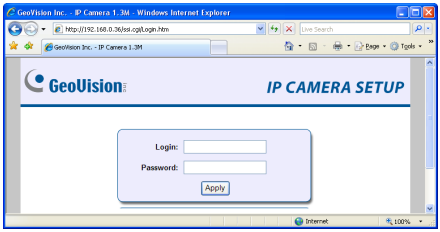
- 0.188 mm (transparent color) x 2
- 0.125 mm (black color with a glossy surface) x 2
- 0.254 mm (black color with a matt surface) x 2

For GV-BX140DW, a 0.125 mm lens ring is provided.

Note: These lens rings are specially designed for varifocal models of GV-BX120D / 130D Series / 140DW / 220D Series / 320D Series / 520D-0. Besides the supplied lens rings, each varifocal model has already been installed with the necessary lens ring.

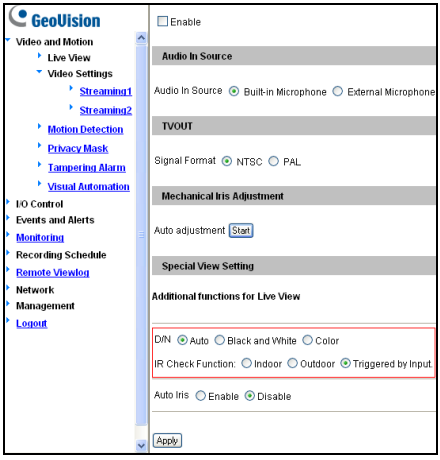
1.3.2 Infrared Illuminators (GV-IR LED / GV-IR LED T2)

1. Connect the infrared illuminator to the terminal block on the camera. See *I/O Terminal Block*, *Box Camera* chapter, *GV-IPCam H.264 User's Manual* on the software CD, or *GV-IR LED User's Manual*.
2. Access the Web interface of the camera.

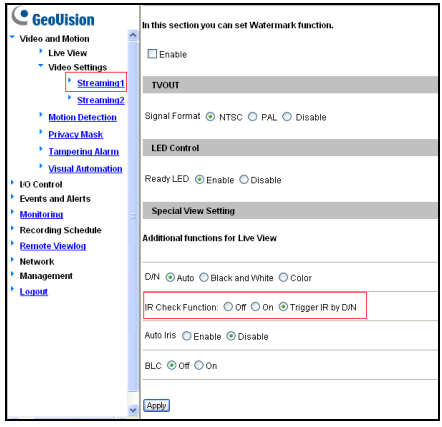


3. Select **Video and Motion**, select **Video Settings**, select **Streaming 1** and set the **IR Check Function** option to be **Trigger by Input** (for GV-IR LED) or **Trigger IR by D/N** (for GV-IR LED T2).

GV-IR LED



GV-IR LED T2



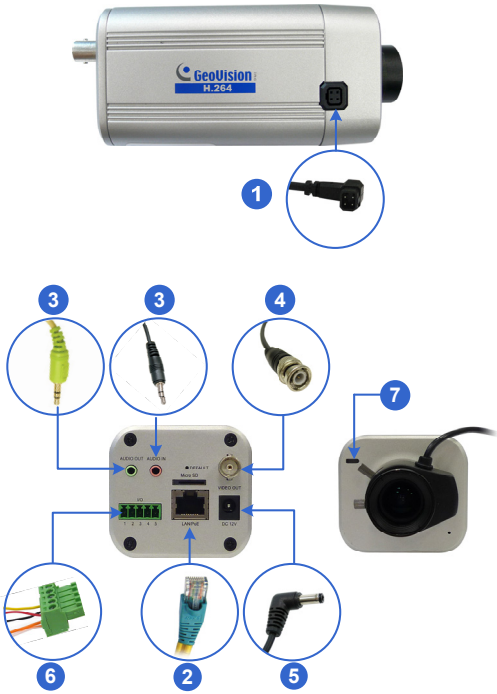
4. Click **Apply**.

For **Trigger by Input** and **Trigger IR by D/N** functions, see the *Video Settings section*, *Administrator Mode* chapter in the *GV-IPCam H.264 User's Manual* in the software CD.

1.4 Connecting the Camera

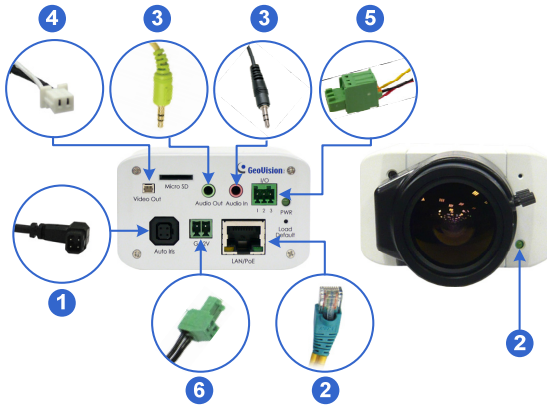
The Box Camera is designed for indoor use. Please make sure the installing site is shielded from rain and moisture.

GV-BX110D



1. If you are using the auto iris model, plug the iris control cable to the Auto Iris Connector on the camera.
2. Use a standard network cable to connect the camera to your network.
3. Optionally connect a speaker and an external microphone.
4. Optionally connect a monitor using a Video Out wire. Enable this function by selecting the signal format at the **TV Out** field on the Web interface. See *TV Out setting,* in the *Video Settings* section, Chapter 12, *GV-IPCam H.264 User's Manual* on the software CD.
5. Connect power using one of the following methods:
   - plugging the supplied power adapter to the DC jack.
   - using the Power over Ethernet (PoE) function and the power will be provided over the network cable.
6. Optionally connect to input / output devices or an infrared illuminator. For details, see *Infrared Illuminator* and *I/O Terminal Block*, Chapter 2, *GV-IPCam H.264 User's Manual* on the software CD.
7. The status LED of the camera will be red.
8. You are ready to access the live view and adjust the image clarity . See *8. Accessing the Camera* in the *Quick Start Guide*.

GV-BX120D / 130D Series / 140DW / 220D Series / 320D Series / 520D-0



1. If you are using the auto iris model, plug the iris control cable to the Auto Iris Connector on the camera.
2. Use a standard network cable to connect the camera to your network.
3. Optionally connect a speaker and an external microphone.
4. Optionally connect a monitor using a Video Out wire. Enable this function by selecting the signal format at the **TV Out** field on the Web interface. See *TV Out setting,* in the *Video Settings* section, Chapter 12, *GV-IPCam H.264 User's Manual* on the software CD.
5. Optionally connect to input / output devices or an infrared illuminator. For details, see *Infrared Illuminator* and *I/O Terminal Block*, Chapter 2, *GV-IPCam H.264 User's Manual* on the software CD.
6. Connect power using one of the following methods:
   - plugging the supplied power adapter to the power port.
   - using the Power over Ethernet (PoE) function and the power will be provided over the network cable.
7. The status LED of the camera will be on.
8. You are ready to access the live view and adjust the image clarity. See *8. Accessing the Camera* in the *Quick Start Guide*.

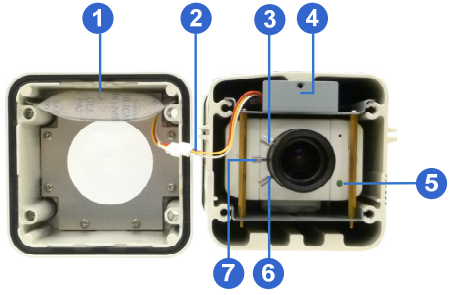
2. IR Arctic Box Camera

2.1 Packing List

- IR Arctic Box Camera
- Screw Anchor x 4
- Screw x 4
- Washer x 4
- Big Torx Wrench
- Small Torx Wrench
- Silica Gel Bag x 2
- Sticker x 2
- GV-PA481

- GV-PA481 Power Cord
- GV-IPCAM H.264 Software CD
- GV-IPCAM H.264 Quick Start Guide
- GV-NVR Software DVD
- GV-NVR Quick Start Guide

2.2 Overview



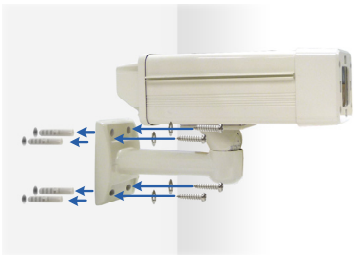
Note: The Iris Screw (no. 7) is only available in GV-BX520D-E.

No.	Name	Description
1	Silica gel bag	Desiccant that keeps the camera housing dry.
2	IR power plug	Supplies power to the built-in IR LEDs.
3	Focus Screw	Adjusts the focus of the camera.
4	Module screw	Holds the module in place.
5	Status LED	Turns on when the unit is ready for use.
6	Zoom Screw	Adjusts the zoom of the camera.
7	Iris Screw	Adjusts the iris of the camera.

2.3 Installation

The IR Arctic Box Camera is designed for outdoor use.

1. Mark the installation site and drill four holes for screw anchors.
2. Insert the supplied screw anchors.
3. Secure the camera to the wall using the supplied washers and screws.



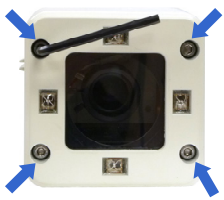
4. Connect the camera to the network and supply power via the PoE cable. See *2.4 Connecting the Camera*.
5. Access the live view. See *8.2 Accessing the Live View* in the *Quick Start Guide*.
6. Based on the live view, adjust the angle of the camera. Loosen the indicated screw with the supplied big torx wrench and adjust the joint.

Tilt Adjustment

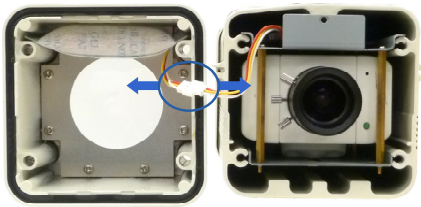
Pan Adjustment

7. Based on the live view, adjust the image clarity using the GV-IP Device Utility program. For details, see *8.3 Adjusting Image Clarity in the Quick Start Guide*.

   Unscrew the cover with the supplied small torx wrench.

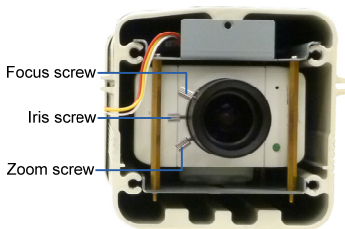


Hold the connectors and unplug them.

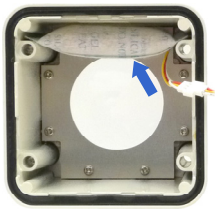


Important: Unscrew and remove the cover carefully. Pulling the cover off may cause damages to the inner wiring of the camera.

Adjust the focus, zoom and iris screws.



8. Replace the silica gel bag. Paste the sticker to the front side of the silica gel bag. Press the sticker several times to make sure it adheres properly and paste the silica gel bag to the indicated place.



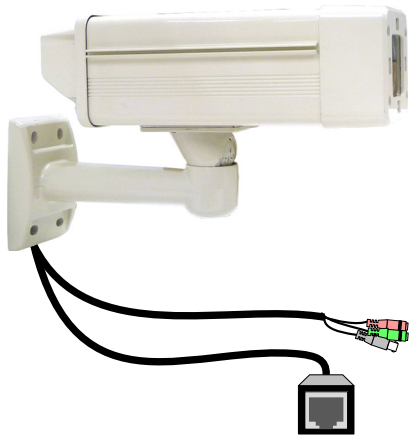
Important:

1. Be sure that the new silica gel bag is concealed in the camera housing within 2 minutes of exposing to open air.
2. To prevent the lens from fogging up, you must replace the silica gel bag every time you open the camera. The gel bag loses its effectiveness when the dry camera is opened.

9. Refer to step 7 to plug the connectors and secure the camera cover.

2.4 Connecting the Camera

2.4.1 Wire Definition

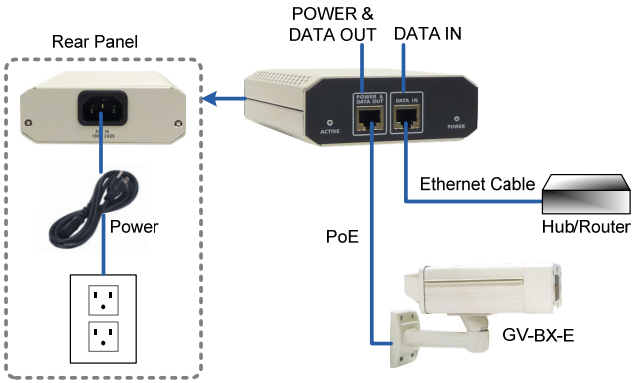


No.	Wire Color	Definition
1	Black (thick)	PoE
2	Black BNC	TV out
3	Green RCA	Audio Out
4	Pink RCA	Audio In

Follow the steps below to connect the camera:

1. Optionally connect a speaker (green) and an external microphone (pink).
2. Optionally connect a monitor using a Video Out wire. Enable this function by selecting your signal format at the **TV Out** field on the Web interface. See *Video Settings* section, *Administrator Mode* Chapter, *GV-IPCam H.264 User's Manual* on the software CD.

3. Connect the camera's cable to the GV-PA481 PoE adapter as illustrated below. The power and network will be supplied simultaneously.



4. The status LED of the camera will be on.

Note: For using the IR Arctic Box Camera, ensure that you:

1. **enable the IR LED** function on the Web interface after loading the default settings.
2. **disable the status LED** to reduce reflection when a green light spot appears on the live view.

For details, see *Notice for Using the IR Arctic Box Camera* section, IR Arctic Box Camera chapter, *GV-IPCam H.264 User's Manual* on the software CD.

3. Mini Fixed Dome & Mini Fixed Rugged Dome

3.1 Packing List

- Mini Fixed Dome or Mini Fixed Rugged Dome
- Torx Wrench
- Self Tapping Screw x 2
- Screw Anchor x 2
- Cable Stopper x 1
- Installation Sticker (for GV-MDR series only)
- Silica Gel Bag x 2 (for GV-MDR series only)
- Ferrite core for vehicle installation
- 3-pin Terminal Block (for GV-MFD120 / 130 / 220 / 320 / 520 only)
- DC 12V Power Adapter (for GV-MFD120 / 130 / 220 / 320 / 520 only)
- GV-IPCAM H.264 Software CD
- GV-IPCAM H.264 Quick Start Guide
- GV-NVR Software DVD
- GV-NVR Quick Start Guide

3.2 Overview

GV-MFD110

No.	Name	Description
1	Default Button	Resets the GV-MFD110 to factory default. See *10. Restoring to Default Settings* later in the *Quick Start Guide*.
2	Lens	Rotates the les right/left to adjust focus.
3	Focus Screw	Loosens the screw to adjust the focus.
4	Tilt Screw	Loosens the screw to adjust the tilt angle.
5	Built-In Microphone	Provides one-way audio.
6	Pan Screw	Loosen the screw to pan.
7	Network/PoE Connection	Connects the Network cable for power and Ethernet connection.

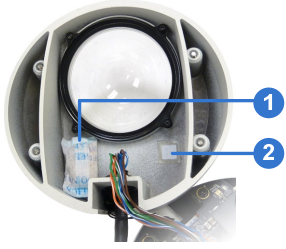
GV-MFD120 / 130 / 220 / 320 / 520

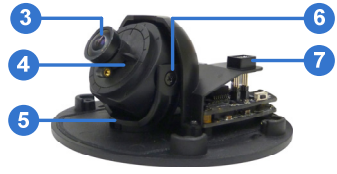
No.	Name	Description
1	Default Button	Resets the camera to factory default. See *10. Restoring to Default Settings* later in the *Quick Start Guide*.
2	Lens	Receives image inputs.
3	Tilt Screw	Loosens the screw to adjust tilt angle.
4	Built-In Microphone	Provides one-way audio.
5	Pan Screw	Loosens the screw to pan.
6	LED Indicators	See *LED Indicators* below.
7	Memory Card Slot	Inserts a micro SD/SDHC card to store recording data.

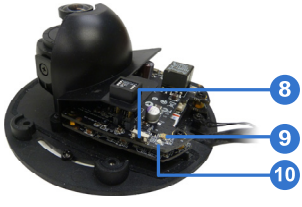
LED Indicator

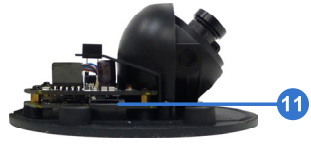
LED Name	Description
1. Link	Turns only when the network is connected.
2. ACT	Turns on when data are being transmitted.
3. PWR	Turns on when power is on.
4. SW RDY (Status)	Turns on when the system is ready.

GV-MDR120 / 220 / 320 / 520









No.	Name	Description
1	Silica gel bag	Absorbs the moisture inside the camera.
2	Conceal paper	Prevents water or moisture from entering the camera.
3	Lens	Receives image inputs.
4	Rotation Disc	Rotates the camera lens.
5	Pan Disc	Pans the camera lens.
6	Tilt Screw	Loosens to tilt the camera.
7	Built-In Microphone	Provides one-way audio.
8	Default Button	Resets the camera to factory default. See *10. Restoring to Default Settings* later in the *Quick Start Guide*.
9	Power and status LED	Turns red when the power is on. Flashes orange light twice when the system is ready.
10	LAN LED	Turns on when the network is connected.
11	Memory Card Slot	Inserts a micro SD/SDHC card to store recording data.

IMPORTANT: In case of damage and possible condensation inside the camera housing, be sure not touch or remove the conceal paper.

3.3 Installation

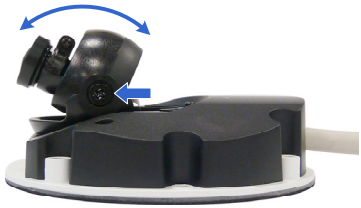
To install a Mini Fixed Dome, make sure the installing site is shielded from rain and moisture.

GV-MFD Series

1. Unscrew the housing cover using the supplied torx wrench.
2. Put the camera on the desired location and make 2 marks on the ceiling for screw anchors. If you want to run the cables inside the ceiling, make a round mark with a diameter of 2.5 cm.
3. Drill the marks and insert the screw anchors.
4. Secure the Mini Fixed Dome to the ceiling with the self-tapping screws.
5. Connect the camera to network and power. For details, see *3.4 Connecting the Camera*.
6. Access the live view. See *7.2 Accessing the Live View* in the *Quick Start Guide*.
7. Adjust the angles based on the live view.

   Pan Adjustment

Tilt Adjustment

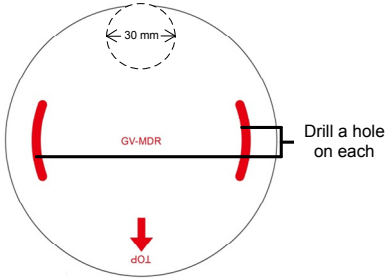


8. For GV-MFD110, adjust image clarity using the GV-IP Device Utility program. For details, see *7.3 Adjusting Image Clarity* in the *Quick Start Guide*.
9. Except for GV-MFD110, insert a Micro SD/SDHC card into the memory card slot.

10. Secure the housing cover using the supplied torx wrench.
11. Optionally conceal the cable opening with the supplied cable stopper.

GV-MDR Series

1. Paste the installation sticker on the desired location. The arrow should point toward the direction that the camera faces.
2. Drill one hole on each of the two curves for screw anchors. Drill the circle (30 mm in diameter) if you want to run the cable into the ceiling.



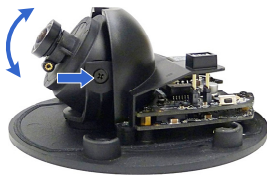
3. Insert the screw anchors.
4. Unscrew the housing cover using the supplied torx wrench.
5. Secure the camera body to the ceiling with the self-tapping screws.

6. Connect the camera to PoE cable.
7. Access the live view. See *7.2 Accessing the Live View* in the *Quick Start Guide*.

8. Adjust the angles based on the live view.

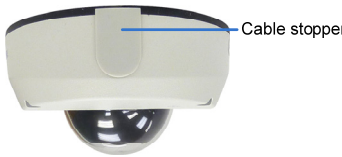
Pan Adjustment

Tilt Adjustment



Rotational Adjustment

9. Insert a Micro SD/SDHC card into the memory card slot.
10. Secure the housing cover using the supplied torx wrench.
11. Optionally conceal the cable opening with the supplied cable stopper.



3.4 Connecting the Camera

Refer to the wire definition and illustrations below to connect the power and network.

3.4.1 Wire Definition

GV-MFD120 / 130 / 220 / 320 / 520

The data cable provides connections for power and network access. The wires are illustrated and defined below:

No.	Wire Color	Definition
1	Yellow	DC 12V+
2	Orange	GND
3	Gray	PoE, Ethernet

GV-MFD110 and GV-MDR120 / 220 / 320 / 520

Power and network connectivity is provided through a PoE cable.

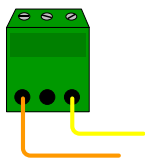
Wire Color	Definition
Gray	PoE, Ethernet

3.4.2 Power and Network Connection

For **GV-MFD120 / 130 / 220 / 320 / 520**, there are two ways to supply power to the camera:

- Use a Power over Ethernet (PoE) adapter to connect the camera to the network, and the power will be provided at the same time.
- Use the supplied 3-pin Terminal Block and power adapter. Follow the steps below to connect the Terminal Block and power adapter.

1. Insert the orange wire of the Mini Fixed Dome (except GV-MFD110) to the left pin and the yellow wire to the right pin of the supplied terminal block.

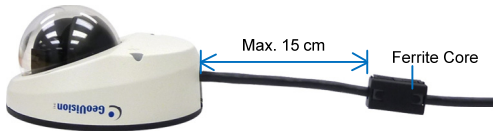


2. Connect the DC 12V Power Adapter to the 3-Pin Terminal Block.

3. Connect the camera to network using a network cable.

3.4.3 Vehicle Installation

To install the **Mini Fixed Rugged Dome** on a vehicle, clip the ferrite core to the camera cable. The ferrite core must be attached as close as possible to the camera with the maximum distance of 15 cm.

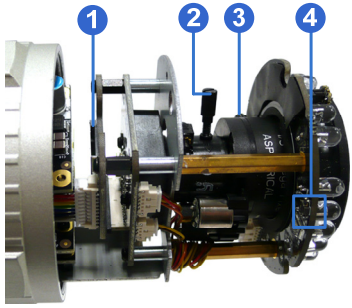


4. Bullet Camera

4.1 Packing List

- Bullet Camera
- Lens (Megapixel and Built-In 16 IR LEDs)
- Self Tapping Screw x 3
- Plastic Screw Anchor x 3
- Torx Wrench x 2
- Sun-Shield Cover Kit (1 Sun-Shield Cover, 2 Philips Head Screws, 2 Plastic Screw Spacers and 2 Hexagon Screws included)
- Silica Gel Bag x 2
- 3-Pin Terminal Block
- DC 12V Power Adapter
- GV-IPCAM H.264 Software CD
- GV-IPCAM H.264 Quick Start Guide
- GV-NVR Software DVD
- GV-NVR Quick Start Guide

4.2 Overview

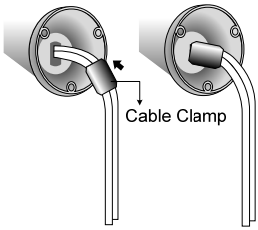


No.	Name	Description
1	Memory Card Slot	Receives a Micro SD/SDHC memory card.
2	Zoom Screw	Holds the zoom lens in place.
3	Focus Screw	Holds the focus lens in place
4	Default Button	Resets all configurations to factory default. See *11. Restoring to Default Settings* later in the *Quick Start Guide*.

4.3 Installation

The Bullet Camera is designed for outdoor use and can be mounted on ceiling and wall.

1. Slide the cable clamp to the camera base.



2. Install the Bullet Camera to the wall / ceiling.

3. Remove the protection sticker from the camera's cover.
4. Connect the power, network and other cables to the camera. See *4.4 Connecting the Camera* in the *Quick Start Guide*.
5. Access the live view. See *8.2 Accessing the Live View* in the *Quick Start Guide*.
6. Adjust the angles of the camera body based on the live view. Three shafts can be adjusted. For details, see *4.3.1 Adjusting the Angles* in the *Quick Start Guide*.

7. Loosen the camera's cover, adjust the lens and focus, and insert a micro SD/SDHC card into the memory card slot. See *4.3.2 Adjusting Lens and Inserting a Micro SD Card* in the *Quick Start Guide*.
8. Fasten the camera's cover.
9. Install the sun-shield cover to the Bullet Camera. For details, see *4.3.3 Installing the Sun-Shield Cover* in the *Quick Start Guide*.

4.3.1 Adjusting the Angles

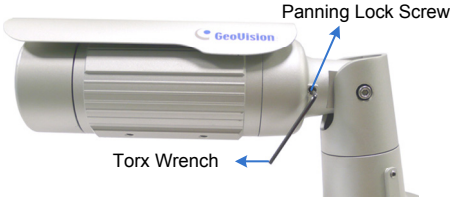
The Bullet Camera is designed to be adjustable in three shafts.

Tip: The three shafts are designed to offer easy and flexible ceiling / wall mount installation.

First Shaft

You can adjust the camera body by 360 degrees to the right or the left.

1. Unscrew the panning lock screw with the torx wrench.



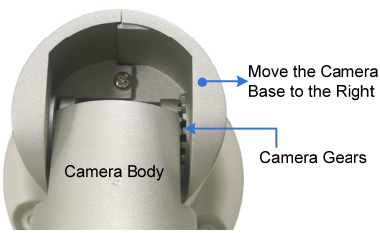
2. Adjust the angle of camera body to the right or the left, and fasten the panning lock screw.

Second Shaft

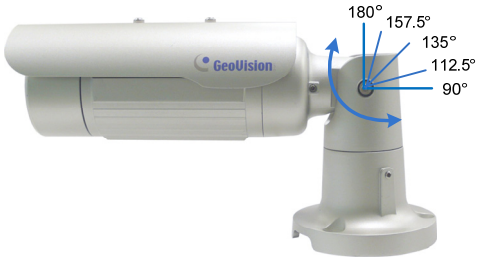
You can adjust the camera body up and down by 90, 112.5, 135, 157.5 or 180 degrees by using the gears inside the camera body and the camera base.

1. Unscrew the tilting lock screw with the torx wrench.

2. Hold the camera body, and move the camera base to the right to separate the camera gears.



3. Adjust the angle of camera body to 90, 112.5, 135, 157.5 or 180 degrees. Then move the camera base to the left to combine the gears.



4. Fasten the tilting lock screw.

Third Shaft

You can adjust the camera base by 360 degrees.

1. Unscrew the base fixing screw with the torx wrench.

2. Adjust the angle of camera base, and fasten the base fixing screw.

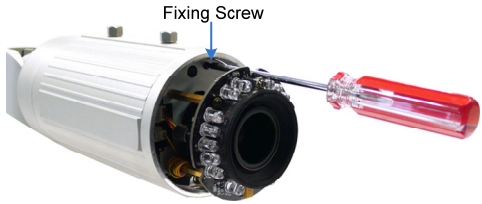
4.3.2 Adjusting Lens and Inserting a Micro SD Card

To adjust the camera's lens to produce a clear image and insert a micro SD card into the SD card slot, follow the steps below.

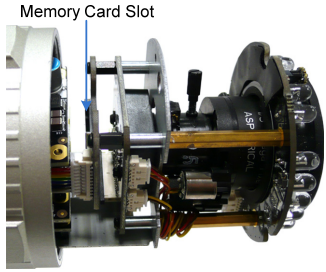
1. Loosen the camera's cover.

2. Remove the silica gel bag.

3. Adjust for image clarity using GV-IP Device Utility. For details, see *8.3 Adjusting Image Clarity* in the *Quick Start Guide*.
4. If you want to insert a micro SD/SDHC card, follow the steps below.
   A. Loosen the fixing screw.



   B. Slightly pull out the camera module.
   C. Insert a micro SD/SDHC card into the memory card slot.



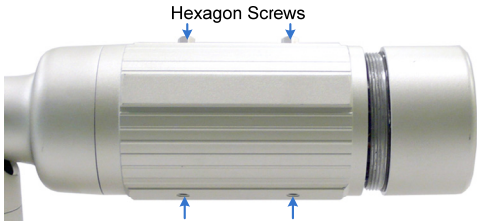
   D. Push the camera module back and fasten the fixing screw.
5. Insert a new silica gel bag to the camera module and fasten the camera's cover within 2 minutes of opening the silica gel bag package.

IMPORTANT: To prevent the lens from fogging up, you must replace the silica gel bag every time you open the camera. The gel bag loses its effectiveness when the dry camera is opened.

4.3.3 Inserting the Sun-Shield Cover

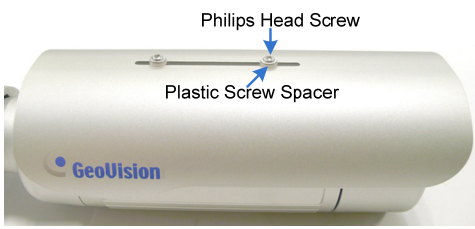
After setting up the Bullet Camera, now you can install the sun-shield cover to the camera.

1. Fasten the hexagon screws either on top or below the camera.



2. Put the sun-shield cover on top of hexagon screws. Make sure to aim the rear hexagon screw at the edge of the sun-shield cover's aperture for optimal sun-shield performance.

3. Fasten the Philips head screws with the plastic screw spacers.

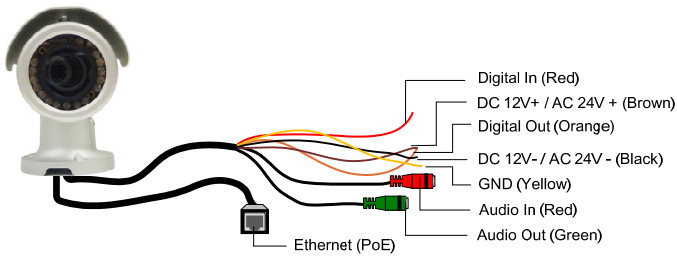


4.4 Connecting the Camera

Connect your Bullet Camera to power, network and the cables needed.

4.4.1 Wire Definition

The cable of the Bullet Camera is illustrated and defined below:



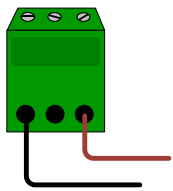
No.	Wire Color	Definition
1	Red	Digital In
2	Brown	DC 12V+ / AC 24V+
3	Orange	Digital Out
4	Black	DC 12V- / AC 24V-
5	Yellow	Ground
6	Red RCA	Audio in
7	Green RCA	Audio out

4.4.2 Connecting the Power Cable

There are two ways to supply power to the Bullet Camera:

- Use a Power over Ethernet (PoE) adapter to connect the camera to the network, and the power will be provided at the same time.
- Use the supplied 3-pin Terminal Block and power adapter. Follow the steps below to connect the 3-pin Terminal Block and power adapter.

1. Insert the black wire of the Bullet Camera to the left-side pin of the 3-Pin Terminal Block and the brown wire to the right-side pin.



2. Connect the DC 12V Power Adapter to the 3-Pin Terminal Block.

5. Vandal Proof IP Dome

5.1 Packing List

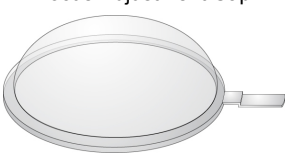
- Vandal Proof IP Dome
- Screw Anchor x 4

- Ceiling Screw x 4

- T-Cap Screw x 3

- T-Cap x 3

- Focus Adjustment Cap



- Silica Gel Bag x 2
- Torx Wrench x 1

- Blue Screw x 3

- Small Screw Cap x 3

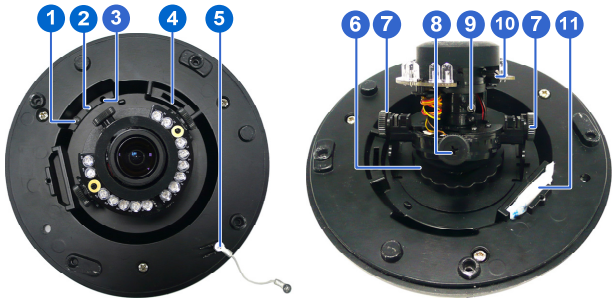
- Plastic Clip x 3

- DC 12V Power Adapter

- 3-Pin Terminal Block
- GV-IPCAM H.264 Quick Start Guide
- GV-NVR Quick Start Guide
- GV-IPCam H.264 Software CD
- GV-NVR Software DVD

Note: Focus Adjustment Cap is only needed and supplied for IK10+ models (GV-VD120D, 121D, 220D, 221D, 320D and 321D).

5.2 Overview



No.	Name	Description
1	Power LED	Turns on (green) when the power is on and turns off when there is no power supply.
2	Status LED	Turns on (green) when the system operates normally and turns off when system error occurs.
3	Default Button	Resets to factory default. For details, see *11. Restoring to Default Settings* in the *Quick Start Guide*.
4	Memory Card Slot	Inserts a micro SD/SDHC card to store recording data.
5	Thread Lock	Locks the housing cover to the camera body to prevent the cover from falling.
6	Pan Disc	Loosens to pan the camera.
7	Tilt Screw	Loosen the screw to tilt the camera.
8	Rotational Screw	Loosens to adjust the camera angle.
9	Zoom Screw	Adjusts the zoom of the camera.
10	Focus Screw	Adjusts the focus of the camera.
11	Silica Gel Bag	Absorbs moisture in the camera body.

5.3 Installation

The Vandal Proof IP Dome is designed for outdoors. With the standard packing, there are two ways to install the Vandal Proof IP Dome: **hard-ceiling mount** and **in-ceiling mount**. The optional accessory wall mount bracket can be purchased for **L-Shaped Wall Mount**.

5.3.1 Hard-Ceiling Mount

1. Unpack the camera package and take out the camera body.

   Unscrew the housing cover

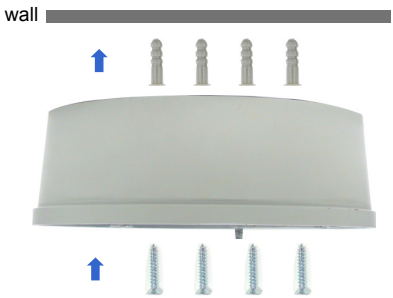
Unscrew thread lock

Unscrew the inner housing

Take out the camera body

2. Mark the position of four screw holes on the desired installation location, and drill holes in the marked locations. Drill the ellipse part if you wish to put the wires through it.

3. Insert the screw anchors to the 4 holes on the ceiling.
4. Secure the back cover to the ceiling with 4 ceiling screws.

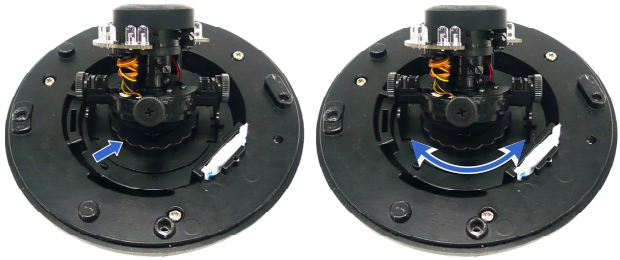


5. Refer to step 1 to secure the camera body with inner housing.
6. Thread the cable through the conduit entry at the side of the back cover. Alternatively pass the wires through the ellipse hole at the bottom of the back cover.
7. Connect the network and power cables to the camera. See *5.4 Connecting the Camera* in the *Quick Start Guide*.

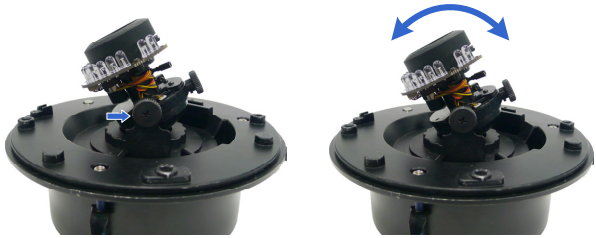
8. Access the live view. See *8.2. Accessing the Live View* in the *Quick Start Guide*.
9. Adjust the camera to a desired angle as illustrated below.

Tip: The 3-axis mechanism offers flexible and easy installation.

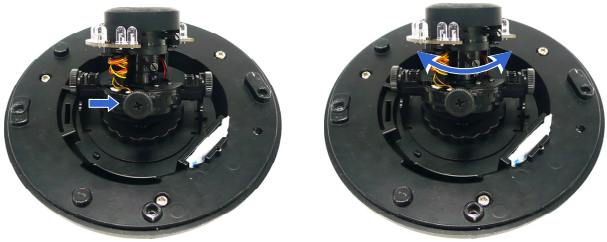
Pan adjustment



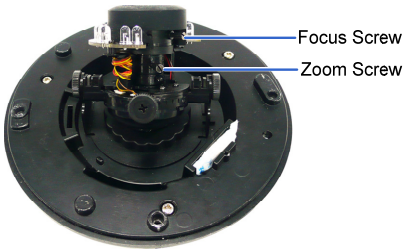
Tilt adjustment



Rotational Adjustment



10. Hold the focus adjustment cap on top of the camera view and adjust for image clarity using the GV-IP Device Utility program. For details, see *8.3 Adjusting Image Clarity* in the *Quick Start Guide*.



11. Screw on the thread lock as shown in step 1.
12. Replace the silica gel bag on the camera body and secure the housing cover to the camera body (as shown in step 1) within 2 minutes of opening the silica gel bag package.

Note: Adjust the black mask inside the housing cover to make sure the camera view is not obscured.

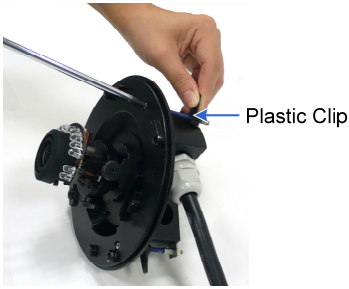
IMPORTANT:

1. To prevent the lens from fogging up, you must replace the silica gel bag every time you open the camera. The gel bag loses its effectiveness when the dry camera is opened.
2. Make sure the housing cover is properly secured to prevent water from entering and damaging the inner housing.

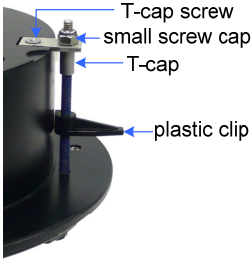
5.3.2 In-Ceiling Mount

1. Follow step 1 in the *Hard-Ceiling Mount* section to remove the housing cover, thread lock and back cover, and take out the camera body.
2. Cut out a circle with a diameter of 142 mm on the ceiling.
3. Insert a blue screw to the indicated holes on the camera body.

4. Screw in a plastic clip to the blue screw, hold it with one hand and use a screw driver to rotate the blue screw until the plastic clip moves half way down.



5. Secure a T-cap on top of the blue screw with a small screw cap and a T-cap screw. Do not tighten the small screw cap so that the plastic clip can move down freely.



6. Repeat steps 4 and 5 for the other two blue screws.

7. Insert the camera to the ceiling with the plastic screws moved inward.

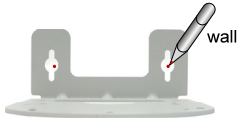
8. Move the blue screws out and rotate the blue screw with a screw driver until the plastic clip and the bottom of the camera body clamps the ceiling tightly.

9. Connect the network and power cables to the camera. See *5.4 Connecting the Camera* in the *Quick Start Guide*.
10. Access the live view. See *8.2 Accessing the Live View* in the *Quick Start Guide*.
11. Follow steps 9 and 10 in the *Hard-Ceiling Mount* section to adjust the angle, focus and zoom of the camera.
12. Follow steps 11 and 12 in the *Hard-Ceiling Mount* section to secure the thread lock, replace the silica gel bag and secure the housing cover.

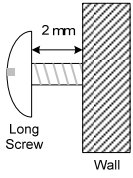
5.3.3 L-Shaped Wall Mount

Optional accessories need to be purchased for **L-shaped wall mount**.

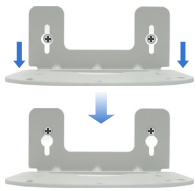
1. Take the wall mount bracket and make 2 marks on the wall for screw anchors.



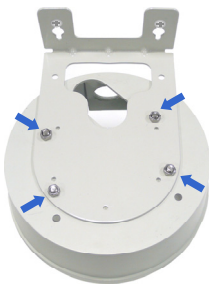
2. Drill the marks and insert 2 screw anchors.
3. Insert the ceiling screws and leave enough distance (approximately 2 mm) to hang the wall mount bracket later.



4. Hang the wall mount bracket on the ceiling screws and push the wall mount bracket downward. Tighten the screws to the wall.



5. Follow step 1 in the *Hard-Ceiling Mount* section to remove the housing cover, thread lock and back cover, and take out the camera body.
6. Secure the back cover to the wall mount bracket with four short screws and big screw caps (both are supplied with the wall mount bracket).



7. Thread the cable through the conduit entry at the bottom of the back cover.

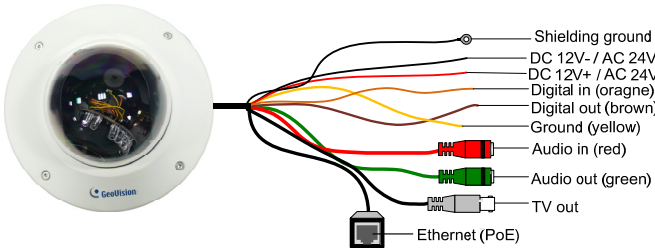
8. Follow step 1 in the *Hard-Ceiling Mount* section to secure the camera body with inner housing.
9. Connect the network and power cables to the camera. See *5.4 Connecting the Camera* in the *Quick Start Guide*.
10. Access the live view. See *8.2 Accessing the Live View* in the *Quick Start Guide*.
11. Follow steps 9 and 10 in the *Hard-Ceiling Mount* section to adjust the angle, focus and zoom of the camera.
12. Follow steps 11 and 12 in the *Hard-Ceiling Mount* section to secure the thread lock and the housing cover.

5.4 Connecting the Camera

Connect your Vandal Proof IP Dome to power, network and other cables.

5.4.1 Wire Definition

The cables for Vandal Proof IP Dome are illustrated and defined below.



No.	Wire Color	Definition
1	Black (thick)	Shielding Ground
2	Black (thin)	DC 12V- / AC 24V-
3	Red	DC 12V+ / AC 24V+
4	Orange	Digital In
5	Brown	Digital out
6	Yellow	Ground
7	Red RCA	Audio in
8	Green RCA	Audio out
9	Black BNC	TV out

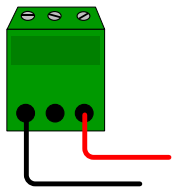
Note: To use the TV out function, connect the black BNC connector to a monitor and select your signal format (NTSC or PAL) at the TV Out field on the Web interface. For details, see *Video Settings*, *Administrator Mode* Chapter, *GV-IPCam H.264 User's Manual* on the software CD.

5.4.2 Connecting the Power Cable

There are two ways to supply power to the camera:

- Use a Power over Ethernet (PoE) adapter to connect the camera to the network, and the power will be provided at the same time.
- Use the supplied 3-pin terminal block and power adapter. Follow the steps below to connect the Terminal Block and the power adapter.

1. Insert the thin black wire of the Vandal Proof IP Dome to the left-side pin of the 3-Pin Terminal Block and the red wire to the right-side pin.



2. Connect the DC 12V Power Adapter to the 3-Pin Terminal Block.

6. Fixed IP Dome

6.1 Packing List

6.1.1 Packing List for Hard-Ceiling Mount

- Fixed IP Dome
- Torx Wrench x 1

- Mounting Plate x 1

- Short Screw Anchor x 3

- Ceiling Screw x 3

- Plate Screw x 3

- TV-out Wire

- DC 12V Power Adapter
- Sticker
- GV-IPCAM H.264 Quick Start Guide
- GV-IPCam H.264 Software CD
- GV-NVR Quick Start Guide
- GV-NVR Software DVD

6.1.2 Packing List for In-Ceiling Mount

- In-Ceiling Housing Cover

- Mounting Plate x 1

- Mounting Bracket x 3

- Copper Pillar x 3

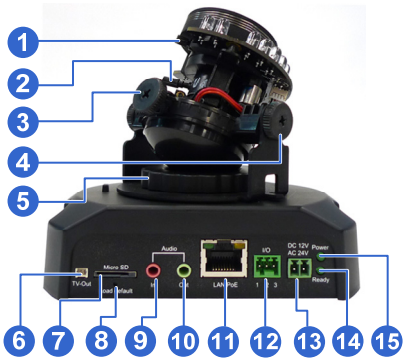
- Copper Pillar Screw x 6

- Bracket Screw x 3

- Thread Lock Screw x 1

- Housing Cover Thread
- Sticker (In-Ceiling Mount)

6.2 Overview



No.	Name	Description
1	Focus Screw	Adjusts the focus of the camera.
2	Zoom Screw	Adjusts the zoom of the camera.
3	Rotational Screw	Loosens to adjust the camera angle.
4	Tilt Screw	Loosens the screw to tilt the camera.
5	Pan Disc	Loosens to pan the camera.
6	Video Out	Connects to a portable monitor for setting the focus and angle of Fixed IP Dome during initial installation.
7	Memory Card Slot	Inserts a micro SD/SDHC card to store recording data.
8	Default Button	Resets to factory default. For details, see *11. Restoring to Default Settings* in the *Quick Start Guide*.
9	Audio In	Connects a microphone for audio input.
10	Audio Out	Connects a speaker for audio output.
11	LAN / PoE	Connects to a 10/100 Ethernet or PoE.

No.	Name	Description
12	I/O Terminal Block	Connects I/O devices. For details, see *Fixed IP Dome* chapter in the *GV-IPCam H.264 User's Manual* on the software CD.
13	DC 12V Port	Connects to power.
14	Status LED	Turns on (green) when the system operates normally and turns off when system error occurs.
15	Power LED	Turns on (green) when the power is on and turns off when there is no power supply.

6.3 Installation

The Fixed IP Camera is designed for indoors. There are four ways to install the Fixed IP Camera: **hard-ceiling mount**, **in-ceiling mount**, **wall-surface mount** and **L-shaped wall mount**.

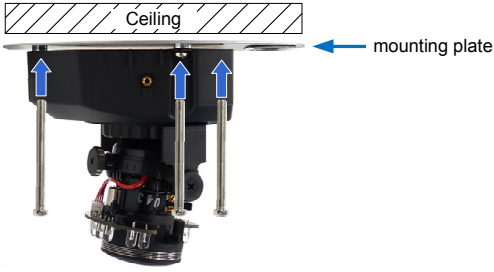
6.3.1 Hard-Ceiling Mount

1. Paste the supplied sticker onto a desired location on the ceiling. Drill the three red dots and the ellipse mark only if you wish to run the wires into the ceiling.
2. Unpack the camera package and take out the camera body.

Use the torx wrench to loosen the housing cover at the front and the back

Take out the camera body

3. Secure the camera body and the mounting plate to the ceiling with the three ceiling screws.



4. Connect the network and power cables to the camera. See *6.4 Connecting the Camera* in the *Quick Start Guide*.
5. Access the live view. See *8.2 Accessing the Live View* in the *Quick Start Guide*.

6. Adjust the camera to a desired angle as illustrated below.

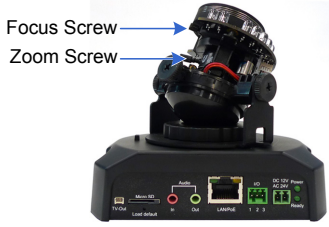
Tip: The 3-axis mechanism offers flexible and easy ceiling / wall installation.

Pan Adjustment

Tilt Adjustment

Rotational Adjustment

7. Adjust for image clarity using the GV-IP Device Utility program. For details, see *8.3 Adjusting Image Clarity* in the *Quick Start Guide*.

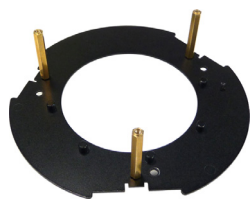


8. Secure the housing cover as shown in step 2. Remove the indicated part when necessary.

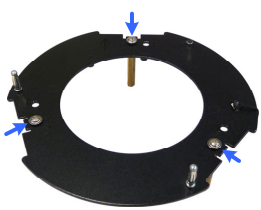
Note: Adjust the black mask inside the housing cover to make sure the camera view is not obscured.

6.3.2 In-Ceiling Mount

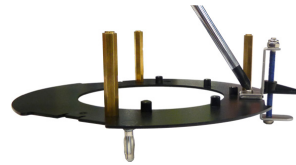
1. Follow step 2 in the *Hard-Ceiling Mount* section to remove the housing cover and take out the camera body.
2. Paste the supplied sticker onto a desired location on the ceiling and cut a circle on the ceiling along the edge of the sticker.
3. On the mounting plate, locate the 3 holes labeled as 1 and insert the 3 copper pillars from the back side.



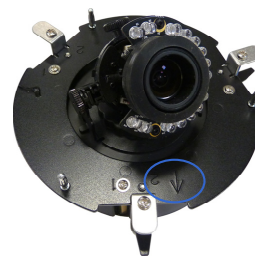
4. From the side with the numbering, secure the copper pillars with 3 copper pillar screws.



5. Place the 3 mounting brackets at the indent next to the copper pillars (labeled as 2 on the mounting plate) and secure them using the 3 bracket screws.



6. Place the mounting plate on the camera body with the copper pillars inserted in the locations indicated below. The arrow on the mounting plate should be pointing toward the front of the camera.



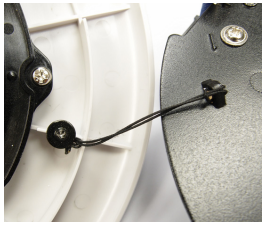
7. From the bottom of the camera, secure the copper pillars using the 3 copper pillar screws.
8. Place the camera into the ceiling opening.

9. On the back side, make sure the black plastic clips are slightly above the ceiling board and pointing outward.

Back Side

Front Side

10. Tighten the bracket screws from the front side of the camera.
11. Connect the network and power cables to the camera. See *6.4 Connecting the Camera* in the *Quick Start Guide*.
12. Access the live view. See *8.2 Accessing the Live View* in the *Quick Start Guide*.
13. Follow steps 6 and 7 in the Hard-*Ceiling Mount* section to adjust the angle, focus and zoom of the camera.
14. Use the housing cover thread and the thread lock screw to attach the housing cover to the camera body.

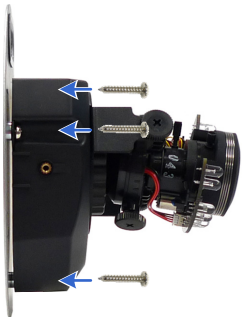


15. Place the housing cover on the camera body with the GeoVision logo pointing toward the front of the camera.

6.3.3 Wall-Surface Mount

1. Follow step 2 in the *Hard-Ceiling Mount* section to remove the housing cover and take out the camera body.
2. Paste the supplied sticker onto a desired location on the wall. Drill the three red dots, and the ellipse mark only if you wish to run the wires into the wall.

3. Insert the short screw anchors and secure the camera and the mounting plate with three plate screws.

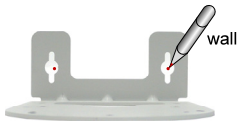


4. Connect the network and power cables to the camera. See *6.4 Connecting the Camera* in the *Quick Start Guide*.
5. Access the live view. See *8.2 Accessing the Live View* in the *Quick Start Guide*.
6. Follow steps 6 and 7 in the Hard-*Ceiling Mount* section to adjust the angle, focus and zoom of the camera.
7. Follow step 8 in the Hard-*Ceiling Mount* section to secure the housing cover.

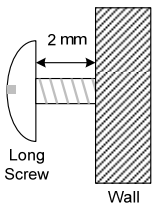
6.3.4 L-Shaped Wall Mount

Optional accessories need to be purchased for **L-shaped wall mount**.

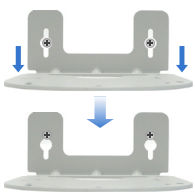
1. Take the wall mount bracket and make 2 marks on the wall for screw anchors.



2. Drill the marks and insert 2 long screw anchors (supplied with the wall mount bracket).
3. Insert the wall mount screws (supplied with the wall mount bracket) and leave enough distance (approximately 2 mm) to hang the wall mount bracket later.



4. Hang the wall mount bracket on the wall mount screws and push the wall mount bracket downward. Tighten the wall mount screws to the wall.

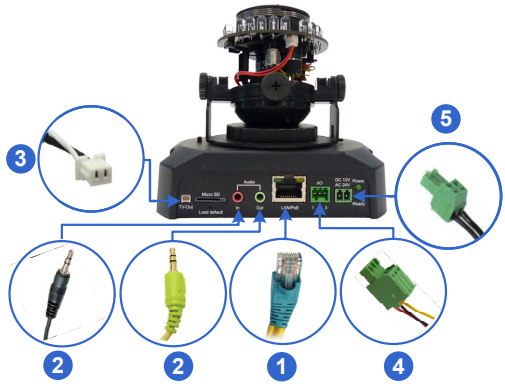


5. Follow step 2 in the Hard-*Ceiling Mount* section to remove the housing cover and take out the camera body.

6. Secure the camera body to the wall mount bracket with three short screws (supplied with the wall mount bracket).

7. Connect the network and power cables to the camera. See *6.4 Connecting the Camera* in the *Quick Start Guide*.
8. Access the live view. See *8.2 Accessing the Live View* in the *Quick Start Guide*.
9. Follow steps 6 and 7 in the Hard-*Ceiling Mount* section to adjust the angle, focus and zoom of the camera.
10. Follow step 8 in the Hard-*Ceiling Mount* section to secure the housing cover.

6.4 Connecting the Camera



1. Use a standard network cable to connect the camera to your network.
2. Optionally connect a speaker and an external microphone.
3. Optionally connect a monitor using a Video Out wire. Enable the function by selecting the signal format in the **TV Out** field in the Web interface. See *TV Out setting,* in the *Video Settings* section, *Administrator Mode* Chapter, *GV-IPCam H.264 User's Manual* on the software CD.
4. Optionally connect to input / output devices. For details, see *I/O Terminal Block*, *Fixed IP Dome* Chapter, *GV-IPCam H.264 User's Manual* on the software CD.
5. Connect power using one of the following methods:
   - plugging the supplied power adapter to the power port.
   - using the Power over Ethernet (PoE) function and the power will be provided over the network cable.
6. The status LED of the camera will be on.

7. Cube & Wireless Cube Camera

7.1 Packing List

- Cube Camera

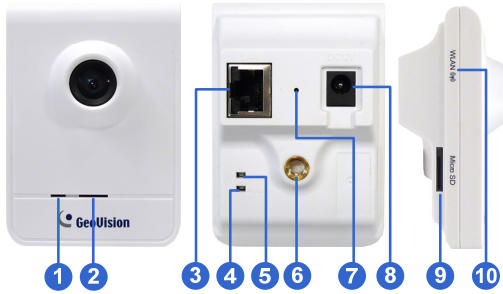
- Supporting Rack

- Screw x 3

- Screw Anchor x 3

- DC 12V Power Adapter (for GV-CB120 / 220 only)
- GV-IPCAM H.264 Quick Start Guide
- GV-NVR Quick Start Guide
- DC 5V Power Adapter (for GV-CBW120 / 220 only)
- GV-IPCam H.264 Software CD
- GV-NVR Software DVD

7.2 Overview

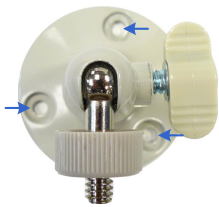


No.	Name	Description
1	Microphone	Receives sounds.
2	Speaker	Plays sounds.
3	LAN	Connects to a 10/100 Ethernet.
4	Status LED	Turns red when the system powers on. Turns orange when the system is ready.
5	LAN LED	Turns green when the camera is connected to the Internet. Turns blue when the wireless service is enabled (for GV-CBW120 / 220 only).
6	Stand screw	Connects to the Supporting Rack.
7	Default Button	Resets to factory default. For details, see *11. Restoring to Default Settings* in the *Quick Start Guide*.
8	Power Port	Connects to power of 12V DC (for GV-CB120 / 220 only) or 5V DC (for GV-CBW120 / 220 only).
9	Memory Card Slot	Inserts a micro SD/SDHC card to store recording data.
10	Wireless LAN Receiver	Indicates that the camera supports wireless connection (for GV-CBW120/220 only).

7.3 Installation

Follow the steps below to install, connect to and adjust your Cube Camera and Wireless Cube Camera.

1. Put the supporting rack on the desired location and make marks for screw anchors.



2. Drill the marks and insert the screw anchors.
3. Secure the supporting rack onto the wall using the supplied screws.
4. Screw the camera onto the supporting rack and fasten the indicated screw.

5. Connect the network and power cables to the camera. See *7.4 Connecting the Camera*.
6. Access the live view. See *8.2 Assigning the Live View*.

7. Adjust the angles of the camera based on live view and fasten the indicated screw.

8. For GV-CBW120/220, to connect to the Internet through wireless service, follow the steps in *8.2.3 Configuring the Wireless Connection*.

7.4 Connecting the Camera

1. Use a standard network cable to connect the camera to your network.
2. Power on using the supplied power adapter (12V DC for GV-CB120 / 220 only; 5V DC for GV-CBW120 / 220 only).
3. The status LED of the camera will be orange. Then you can set the IP address for the unit. See *8. Accessing the Camera* in the *Quick Start Guide*.

8. Accessing the Camera

8.1 System Requirement

To access the Box Camera, IR Arctic Box Camera, Mini Fixed Dome, Mini Fixed Rugged Dome, Bullet Camera, Vandal Proof IP Dome, Fixed IP Dome, Cube Camera and Wireless Cube Camera through the Web browser, ensure your PC connects to the network properly and meets this system requirement:

- Microsoft Internet Explorer 7.x or later

Note: For the users of **Internet Explorer 8**, additional settings are required. For details, see *Appendix A* in *GV-IPCam H.264 User's Manual* on the software CD.

8.2 Accessing the Live View

Access or configure your camera according to the camera type and its firmware version:

Camera Type & Firmware Version	Default Connection Type
• GV-IPCAM H.264 with **firmware V1.07 or later** (except GV-BX110D, BL110D, GV-MFD110, GV-PT110D, GV-PTZ010D)	**DHCP** An unused IP address is automatically assigned by the DHCP server to the camera when the camera is connected to the network. Refer to ***8.2.1 Checking the Dynamic IP Address*** to look up the IP address. However, if the camera is installed in a LAN without DHCP server, access the camera by its default IP address **192.168.0.10** and see ***8.2.2 Configuring the IP Address*** for more detail.
• GV-IPCAM H.264 with **firmware V1.06 or earlier** • GV-BX110D • GV-BL110D • GV-MFD110 • GV-PT110D • GV-PTZ010D	**Static** The default IP address **192.168.0.10** will be automatically assigned when the camera is connected to the network. To avoid IP conflict with other GeoVision IP devices, it is advisable to re-assign a different IP address. See ***8.2.2 Configuring the IP Address*** for more detail.

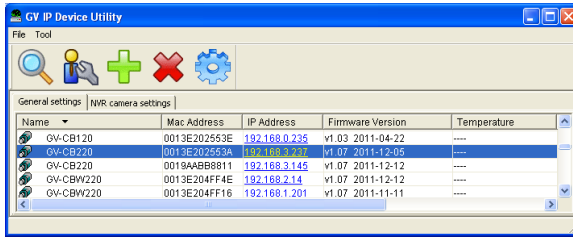
8.2.1 Checking the Dynamic IP Address

Follow the steps below to look up the IP address and access the Web interface.

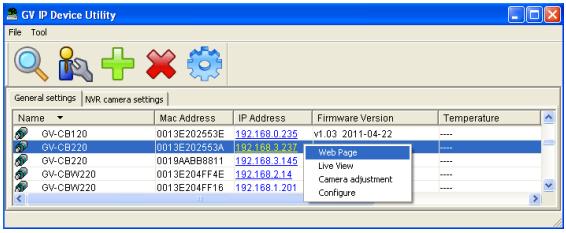
1. Install the GV-IP Device Utility program included on the *GV-IPCAM H.264 Software CD*.

Note: The PC installed with GV-IP Device Utility must be under the same LAN with the GV-IPCAM H.264 you wish to configure.

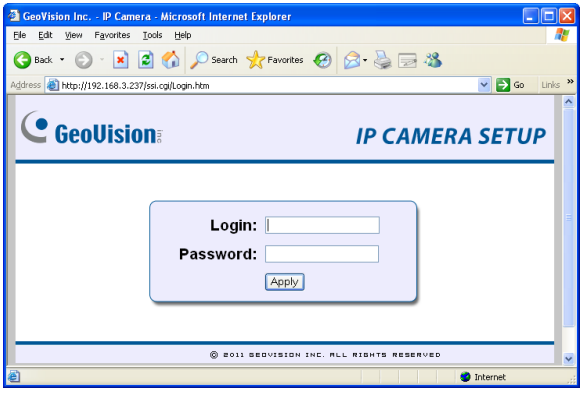
2. On the GV-IP Utility window, click the button to search for the IP devices connected in the same LAN. Click the **Name** or **Mac Address** column to sort.



3. Find the camera with its Mac Address, click on its IP address and select **Web Page**.



4. The login page appears.

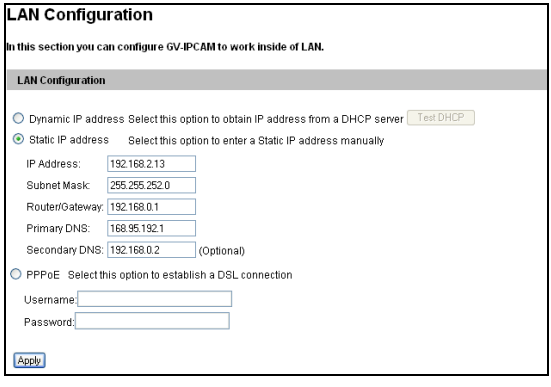


5. Type the default ID and password **admin** and click **Apply** to log in.

8.2.2 Configuring the IP Address

Follow the steps below to configure the IP address.

1. Open your Web browser, and type the default IP address http://192.168.0.10.
2. In both Login and Password fields, type the default value **admin**. Click **Apply**.
3. In the left menu, select **Network** and then **LAN** to begin the network settings.


LAN Configuration
In this section you can configure GV-IPCAM to work inside of LAN.
LAN Configuration
Dynamic IP address Select this option to obtain IP address from a DHCP server
Test DHCP
Static IP address Select this option to enter a Static IP address manually
IP Address: 192.168.2.13
Subnet Mask: 255.255.252.0
Router/Gateway: 192.168.0.1
Primary DNS: 168.95.192.1
Secondary DNS: 192.168.0.2 (Optional)
PPPoE Select this option to establish a DSL connection
Username:
Password:
Apply

4. Select **Static IP address**, **Dynamic IP address** or **PPPoE** and type the required network information.
5. Click **Apply**. The camera is now accessible by entering the assigned IP address on the Web browser.
6. To enable the updating of images in Microsoft Internet Explorer, you must set your browser to allow ActiveX Controls and perform a one-time installation of GeoVision's ActiveX component onto your computer.

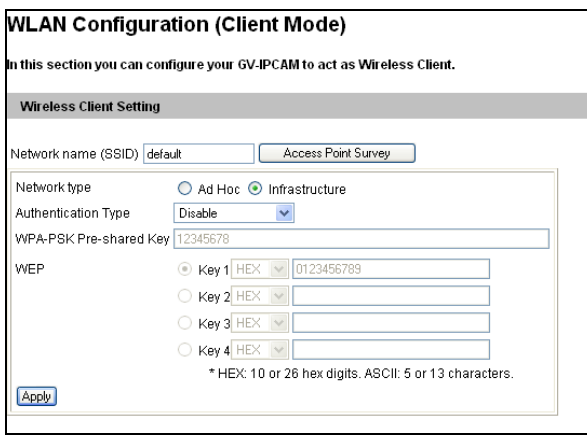
IMPORTANT:

1. If **Dynamic IP Address** or **PPPoE** is enabled, you need to know which IP address the camera will get from DHCP server or ISP to log in. If your camera is installed in the LAN, use the GV-IP Device Utility to look up its current dynamic IP address. See *8.2.1 Checking the Dynamic IP Address*. If your camera uses a public dynamic IP address via PPPoE, use the dynamic DNS Service to obtain a domain name that is linked to the camera's changing IP address first. For details, see *13.7.1 LAN Configuration* and *13.7.3 Advanced TCP/IP* in the *GV-IPCam H.264 User's Manual* on the software CD.
2. If **Dynamic IP Address** or **PPPoE** is enabled and you cannot access the camera, you may have to reset the camera to its factory default and then perform the network settings again. To restore factory settings, see *11. Restoring to Default Settings* in the *Quick Start Guide.*

8.2.3 Configuring the Wireless Connection

For GV-CBW120 / 220, you may choose to create wireless connection to the Internet.

1. To set up the wireless LAN for the first time, power on and connect a standard network cable to the camera.
2. An IP address will be automatically assigned to the camera. Use GV IP Device Utility to search for the device. For details, see *8.2.1 Checking the Dynamic IP Address*.
3. Configure the wireless settings.
   A. On the Web interface, select **Network**, select **Wireless** and **Client Mode**. This dialog box appears.



   B. Type the Network Name (SSID) or click the **Access Point Survey** button to search and select for the available Access Points/wireless stations.
   C. Select **Ad-Hoc** or **Infrastructure** for the Network type.

D. Select the **Authentication Type** using the drop-down list. You can also obtain this information by clicking the **Access Point Survey** button.

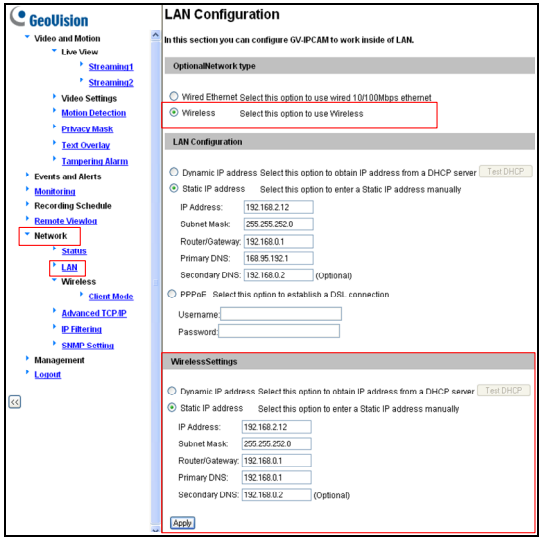
E. Type the **WPA-PSK Pre-shared Key** or **WEP** depending on the encryption setting for the Access Point.

F. Click **Apply** to save the configuration.

Note:

1. Your encryption settings must match those used by the Access Points or wireless stations with which you want to associate.
2. When **Ad Hoc** is used, only **WEP** encryption is supported.
3. When you lose the wireless access, you can still access the unit by connecting it to a LAN and using the GV IP Device Utility to search for the device.

4. Enable wireless LAN.
   A. On the Web interface, select **Network** and **LAN**. This page appears.



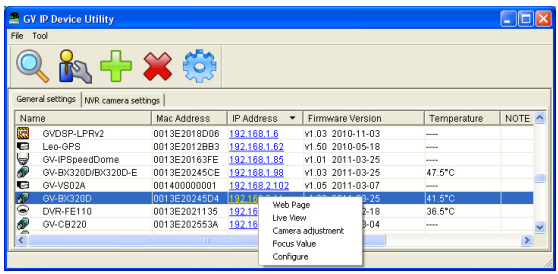
   B. Select **Wireless** for Optional Network Type
   C. To use a dynamic IP address assigned by the DHCP server, select **Dynamic IP address**. To use a fixed IP address, select **Static IP address** and type the IP address information.
5. Click **Apply**. The Wireless Cube Camera will start creating a wireless connection to the access point. The connection is established when the LAN LED turns blue.
6. Unplug the Ethernet cable.

8.3 Adjusting Image Clarity

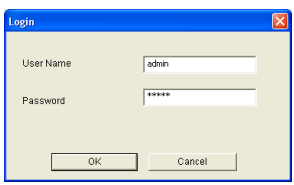
You can adjust the image clarity using the GV-IP Device Utility. Make sure that you have connected your GV-IPCAM H.264 to the network and install the GV-IP Device Utility program under the same LAN.

Note: This feature is only supported by **Box Camera**, **IR Arctic Box Camera**, **GV-MFD110**, **Bullet Camera**, **Vandal Proof IP Dome**, and **Fixed IP Dome**.

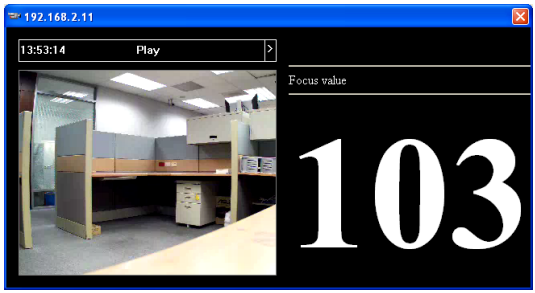
1. Make sure you have installed the GV-IP Device Utility program included on the *GV-IPCAM H.264 Software CD*.
2. On the GV-IP Utility window, click the button to search for the IP devices connected in the same LAN. Click the IP Address of the camera you desire. A drop-down list appears.



3. Select **Focus Value**. The Login dialog box appears.



4. Type the user name and password of the camera selected. The default is **admin** for both user name and password. This window appears.



5. For **GV-VD120D / 121D**, **VD-220D / 221D** and **VD-320D / 321D**, hold the supplied Focus Adjustment Cap over the camera view. For details, see *8.3.1 Using Focus Adjustment Cap* for details.

6. Adjust the **Zoom Screw** and the **Focus Screw** of the camera slowly until the focus value reaches the maximum.

Note:

1. Do not over tighten the screws. The screws only need to be as tight as your fingers can get them to be. Do not bother using any tool to get them tighter. Doing so can damage the structure of lens.
2. The maximum focus value may vary when the environment changes.

8.3.1 Using Focus Adjustment Cap

There are two types of Focus Adjustment Caps for **GV-VD120D / 121D**, **GV-VD-220D / 221D** and **GV-VD-320D / 321D**.

Focus Adjustment Cap Type I:

Hold the Focus Adjustment Cap on top of the camera view, keep it close to the lens and slightly tilt to one side to adjust the image.

Focus Adjustment Cap Type II:

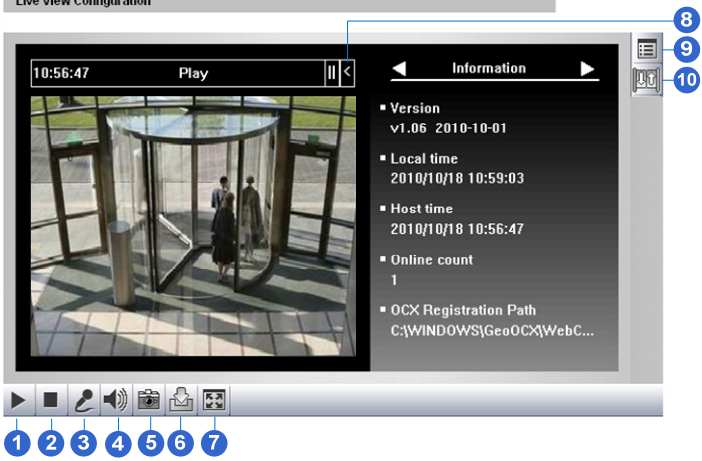
Hold the Focus Adjustment Cap on top of the camera view and keep it close to the camera.

Do not leave a distance between the Focus Adjustment Cap and the camera.

9. The Web Interface

Live View

In this section you can see and configure the default camera view.



No.	Name	Function
1	Play	Plays live video.
2	Stop	Stops playing video.
3	Microphone	Talks to the surveillance area from the local computer.
4	Speaker	Listens to the audio around the camera.
5	Snapshot	Takes a snapshot of live video.
6	File Save	Records live video to the local computer.
7	Full Screen	Switches to full screen view. Right-click the image to see additional options.
8	Control Panel	Displays the camera information, video settings, audio data rate, I/O device status, images captured upon alarm, and GPS location of the camera. Also allows you to adjust image quality and install the program from the hard drive.
9	Show System Menu	Brings up these functions: Alarm Notify, Video and Audio Configuration, Remote Config, Show Camera Name and Image Enhance.
10	I/O Control	Enables the I/O Control Panel and Visual Automation.

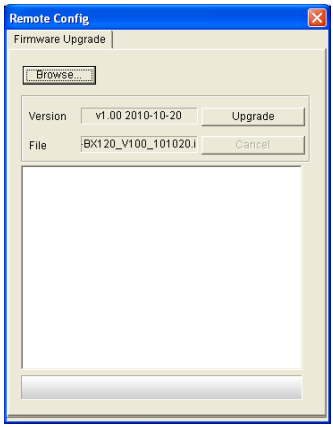
10. Upgrading System Firmware

GeoVision periodically releases updated firmware on the website. The new firmware can be simply loaded into the GV-IPCAM H.264 by using the Web interface or IP Device Utility included in the software CD.

IMPORTANT:

1. While the firmware is being updated,
   A) the power supply must not be interrupted, and
   B) do not unplug the Ethernet cable if the cable is the source of power supply (Power over Ethernet or PoE supported).
2. Do not turn the power off within 10 minutes after the firmware is updated.
3. If you use the IP Device Utility for firmware upgrade, the computer used to upgrade firmware must be under the same network of the camera.

1. Stop these operations: monitoring of IPCam H.264, connection to GV-System and remote connections to Center V2, VSM, ViewLog Server and 3GPP/RTSP.
2. In the Live View window, click the **Show System Menu** button and select **Remote Config**. This dialog box appears.



3. Click the **Browse** button to locate the firmware file (.img) saved at your local computer.
4. Click the **Upgrade** button to start the upgrade.

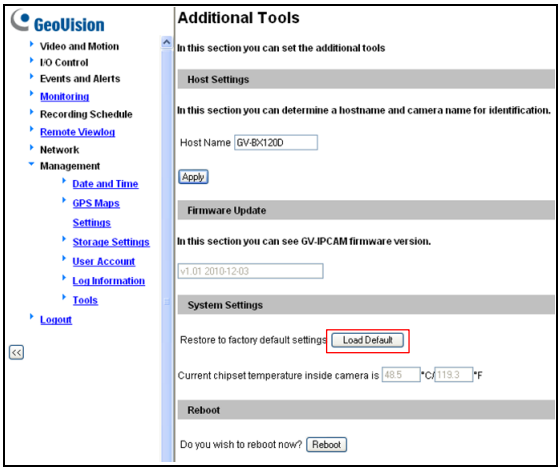
WARNING: The interruption of power supply during updating causes not only update failures but also damages to the camera. In this case, please contact your sales representative and send your device back to GeoVision for repair.

11 Restoring to Default Settings

GeoVision periodically releases updated firmware on the website. The new fir You can restore factory default settings through the Web interface or directly on the camera.

11.1 Using the Web Interface

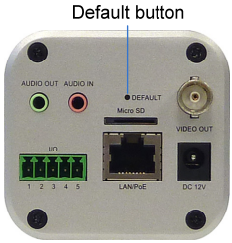
1. On the left menu of Web interface, select **Management** and select **Tools**. The Additional Tools dialog box appears.
2. Click the **Load Default** button in the System Settings section.



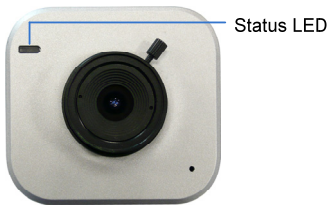
11.2 Directly on the Camera

GV-BX110D

1. Unplug the power cable and the network cable to start.
2. Press and hold the **default** button on the back panel of the camera.



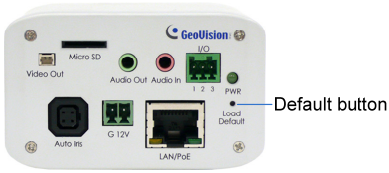
3. Power on the camera using the power cable or PoE cable. The status LED on the front panel of the camera turns red.



4. Wait until the status LED turns off. This may take about 10 seconds.
5. Soon after the status LED turns off, it turns red again and a clicking sound appears. Then you can release the **default** button and the process of loading default values is completed.

GV-BX120D / 130D Series / 140DW / 220D Series / 320D Series / 520D-0

1. Unplug the power cable and the network cable to start.
2. Press and hold the **default** button on the back panel of the camera.



3. Power on the camera using the power cable or PoE cable. The status LED on the front panel of the camera turns on and then off twice. This may take about 30 seconds.

4. Release the **default** button and the process of loading default values is completed.

GV-MFD110

1. Unplug the network cable to start.
2. Unscrew the camera's cover.
3. Press and hold the **default** button.

4. Power on the camera using the network cable. Wait until the network status LED turns off. This may take about 40 seconds.
5. Soon after the network status LED turns off, release the **default** button. The process of loading default values is completed.

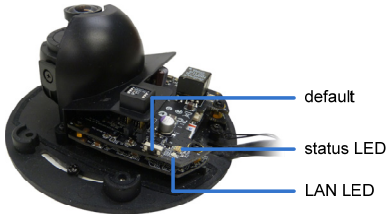
GV-MFD120 / 130 / 220 / 320 / 520

1. Unplug the power cable or the PoE cable.
2. Press and hold the **Default** button.

3. Power on the camera using the power cable or the PoE cable.
4. Hold the **Default** button until the **Link** and **ACT** LEDs turn off. This will take about 40 seconds.

Mini Fixed Rugged Dome

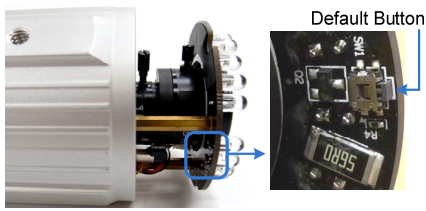
1. Unplug the PoE cable.
2. Press and hold the **Default** button.



3. Plug the PoE cable back. The status LED should be red.
4. Release the **Default** button when the status LED flashes orange twice. This will take about 40 seconds.

Bullet Camera

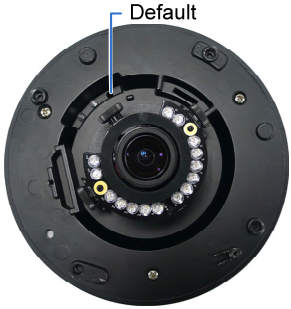
1. Unplug the power cable and the network cable to start.
2. Loosen the camera's cover and remove the **Silica Gel Bag**.
3. Press and hold the **Default** button for 50 seconds while plugging the power cable.



4. Release the **default** button and the process of loading default values is completed.
5. Insert a new **Silica Gel Bag** and fasten the camera's cover immediately.

Vandal Proof IP Dome

1. Unplug the power cable and the network cable to start.
2. Use a pin to press and hold the **default** button on the inner housing.



3. Power on the camera using the power cable or PoE cable.
4. When the status LED turns on and off twice, release the **default** button and the process of loading default is completed. This may take about 30 seconds.

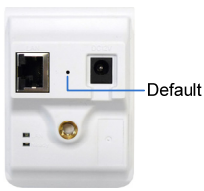
Fixed IP Dome

1. Unplug the power cable and the network cable to start.
2. Use a pin to press and hold the **default** button on the panel.

3. Power on the camera using the power cable or PoE cable.
4. When the status LED turns on and off twice, release the **default** button and the process of loading default is completed. This may take about 35 seconds.

Cube Camera / Wireless Cube Camera

1. Unplug the power cable and the network cable to start.
2. Use a pin to press and hold the **default** button on the panel.



3. Power on the camera using the power cable.
4. When the status LED turns on (orange) and off twice, release the **default** button and the process of loading default is completed. This may take about 35 seconds.